



Remarks

Please consider the following remarks.

Support for the amendments to claims 1, 11 and 17 can be found in originally filed claims 2 and in the specification at page 5, line 17 to page 6, line 14; and at page 7, lines 3 – 9 and FIG. 1.

The Examiner has rejected claims 1- 2, 5 – 11, 13 – 14, 16, 17, 19 – 20 and 22 - 24 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 11 and 17 have been amended and claim 6 has been cancelled thus overcoming this rejection.

With regard to claim 13, the Examiner states that claim 13 appears to be inconsistent with the term “substantially” recited in the last wherein clause of claim 11, and also suggests the same inconsistency regarding claims 19 and 17. In response, Applicant points out that the limitation that “all of said liquid overflowing from said bottom tray is collected in said at least one downcomer” in each of claims 13 and 19 is simply a more narrow restriction to the limitations in each of claims 11 and 17 that “substantially all of said liquid overflowing from said bottom tray is collected in said at least one downcomer”. Thus,

Applicants submits that there is no inconsistency between claims 11 and 13 and claims 17 and 19.

The Examiner has objected to claims 1 – 2 and 5 – 10 because of certain informalities.

Claim 1 has been amended to incorporate the Examiner's suggested change, thus overcoming the objection.

The Examiner has rejected claims 1, 5 – 11, 13 – 17, 19 – 20 and 22 - 24 under 35 U.S.C. 103(a) as being unpatentable over Molique (3,230,158) in view of Kraft (2,534,173).

Molique discloses a fractionator tower **2** from which a portion of the bottoms is taken by a conduit **4** to bottom header **5** of fired heater **6** containing tubes **7**. The liquid entering header **5** subdivides and passes through tubes **7** and the heated fluid which has risen through tubes **7** is collected in header **8** and passed by a conduit **9** back to fractionator tower bottoms just above the level of liquid therein. Flashed vapors rise, as shown by the arrow in FIG. 1, while unvaporized or residual liquid falls to the bottom. Liquid **10** from a bottom tray **11** is passed by a downcomer **12** and a pipe **13** to header **5** for admixture in header **5** with the bottoms liquid entering by pipe **4**. FIG. I shows that the downcomer **12** extends a considerable distance above the top surface of bottom tray **11** such that the liquid level on bottom tray **11** extends above the top of the

vapor passageway devices of bottom tray **11**. See Col. 2, line 65 to Col. 3, line 15, and FIG. 1.

Kraft, in Fig. 3, discloses a distillation column **10** which includes a lower tray **14**, a collection trough **16** extending across the tray **14** and a downcomer **17** extending downwardly from trough **16** to a draw-off pipe **21** which is spaced from the downcomer **17**. The liquid from downcomer **17** is passed via draw-off **21** to a reboiler **22**. A vapor liquid mixture is discharged from reboiler **22** through line **26** into the bottom of the column **10** below the first tray (plate) **14**. As can be seen from the depiction in Fig. 3, the vapor from line **26** is in fluid flow communication with liquid feeding draw-off pipe **21**.

Applicant submits that claims 1, 11 and 17, as amended, and each of claims 5, 7 – 11, 13 – 14, 16 – 17, 19 – 20 and 22 - 24 which depend variously from claims 1, 11 and 17, are patentably distinguishable over Molique in view of Kraft.

Applicant gratefully acknowledges the Examiner's indication of allowability for claim 2 if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

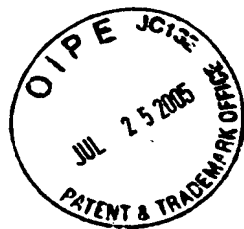
In response, claim 1 has been amended to include the limitations of claim 2, thus making claim 1 allowable.

Claim 11, as amended, includes the limitation “wherein substantially all of said liquid overflowing from said bottom tray is collected in said at least one downcomer” which distinguishes claim 11, as amended, from the Molique reference. With the downcomer configuration discussed above for the Molique reference, the liquid level on the bottom tray 11 of Molique will be such that liquid will pass from bottom tray 11 into a flashed vapor/liquid zone to which vapor and liquid are also passed from conduit 9. Therefore, a substantial portion of the liquid is passed to the flashed vapor/liquid zone feeding conduits 3 and 4. In light of this, it is not possible for the Molique reference to meet the limitation in claim 11, as amended, that substantially all of the liquid overflowing from said bottom tray is collected in said at least one downcomer. Thus, claim 11, as amended, distinguishes over the Molique reference.

For clarification purposes, claims 11 and 17 have been amended such that “said bottom tray substantially seals off said overflow liquid stream from fluid flow communication with said vapor introduced into said separator”. The Examiner states that “[t]he spacing between the downcomer (17) to the draw off pipe (21) in the Kraft’s reference is enclosed by the weir (20) for the purpose of maintaining a liquid seal of the lower end of the downcome (17)” and that “[o]bviously, the devices (16), (17), (20) and (21) are sealed off from (26) in the Kraft’s references.” See FOA, page 4, first paragraph.

Applicant points out that the liquid seal of the Kraft reference is not the same as substantially sealing off from fluid flow communication using said bottom tray. As an example, liquids dropping out of the fluid flowing into column 10 from conduit 26 will mix with the liquid standing in the bottom of column 10 and possibly mix with the liquid coming from downcomer 17. Similarly, vapors present in the fluid flowing down the downcomer 17 can rise up out of the bottoms liquid in column 10 for mixture with vapors entering column 10 from conduit 26. Clearly, the Kraft reference does not supply the limitation that “said bottom tray substantially seals off said overflow liquid stream from fluid flow communication with said vapor introduced into said separator” and does not prevent fluid flow communication between it’s devices (16), (17), (20) and (21) from it’s device (26).

As stated above, regarding the Kraft reference, the vapor from line 26 is in fluid flow communication with liquid feeding draw-off pipe 21, which does not meet the above described limitation in amended claim 17. Thus, Applicant submits that amended claims 11 and 17, and all the claims which depend variously therefrom, are patentably distinguishable over Molique and that the Kraft reference does not supply the above described elements not present in Molique.



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In view of the amendments to claims 1, 11 and 17, the cancellation of claim 6, and the remarks above, claims 1, 5, 7 – 11, 13 - 14, 16, 17, 19, 20, and 22 – 24, are now believed to be in condition for allowance. Therefore, early allowance for each of claims 1, 5, 7 – 11, 13 - 14, 16, 17, 19, 20, and 22 – 24 is respectfully requested.

Respectfully submitted

CONOCOPHILLIPS COMPANY
IP LEGAL

By Jeffrey R. Anderson
Jeffrey R. Anderson
Registration No. 42,263

JRA/cb
CONOCOPHILLIPS COMPANY
IP LEGAL
P.O. Box 2443
Bartlesville, Oklahoma 74005
1-918-661-9607

C E R T I F I C A T E O F M A I L I N G

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to:
Commissioner for Patents, P.O. Box 1450,
Alexandria, VA 22313-1450, on

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(Date)

Jeffrey R. Anderson
Jeffrey R. Anderson